



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,151	10/17/2000	Bradley Engstrand	MOT-P-00-001	2732

7590 06/18/2003
Patent + TMS
A Professional Corporation
1914 N Milwaukee Avenue
Third Floor
Chicago, IL 60647

EXAMINER

LUU, THANH X

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/690,151

Applicant(s)

ENGSTRAND, BRADLEY

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

This Office Action is in response to amendments and remarks filed May 7, 2003.

Claims 1-22 are currently pending.

Claim Objections

1. Claim 1 is objected to because of the following informalities:

In claim 1, line 6, "the wall" lacks proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There appears to be insufficient support for an embodiment in which a seal is positioned exterior to the machine element. Figure 2 shows a seal (22) at the interior of a machine element (10). Examiner reminds applicant that no new matter may be added.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

Art Unit: 2878

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5 and 9, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al. (U.S. Patent 4,661,695).

Regarding claims 1, 5 and 9, Mori et al. disclose (see Figure 1) an apparatus for measuring displacement, the apparatus comprising: a machine element (engine) having a body defining an interior wherein the body has an interior surface (interior of engine) and a length defined between a first end (top) and a second end (bottom of piston path); a first wall (wall between V1 and V2) at the first end; a second wall (engine enclosure at second end; not shown) at the second end substantially enclosing the interior; a shaft element (shaft (not labeled) attached to 3) movable within the machine element; a head element (piston 3) attached to the shaft element adjacent to the interior surface of the machine element; a light source (within 4; 44 of Figure 2) attached to the machine element; and a sensor (45 of Figure 2) attached to the machine element and positioned to detect intensity of light within the machine element wherein the intensity of light corresponds to a position of the head element within the machine element at any point between the first end and the second end (see Figures 6 and 7). Mori et al. further disclose (see Figure 2) a second sensor (other instance of 45) attached to the first wall. Further, since the walls and ends of Mori et al. can be designated as first or second or vice versa, Mori et al. disclose the light source is attached at a first or second wall.

6. Claims 11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by

Low (U.S. Patent 5,271,505).

Regarding claims 11 and 14, Low discloses (see Figure 2) an apparatus for cleaning a machine component, comprising: a machine element (16) having a body defining an interior wherein the body has an interior surface and a length defined between a first end (top) and second end (bottom); a shaft element (33) movable within the machine element; a head element (screw at arrow) attached to the shaft element and adjacent to the interior surface of the machine element; and a first brush (32) positioned exterior to the body of the machine element in contact with the shaft element. Low further discloses (see Figure 2) a second brush (matching brush on the right; not labeled) positioned exterior to the body of the machine element.

7. Claims 17, 18 and 20, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Segerson et al. (U.S. Patent 4,902,903).

Regarding claims 17, 18 and 20, Segerson et al. disclose (see Figures 3 and 4) a method for measuring displacement of a machine element, comprising: providing a machine element (40) having a body (within 40) defining an interior wherein the body has an interior surface and a length defined between a first end (left side) and a second end (right side); providing a shaft element (16) capable of movement within the machine element; attaching a head element (at 18; not labeled) to the shaft element; positioning the head element adjacent to the interior surface of the machine element; attaching a light source (44E) to the machine element on a first side of the head element; attaching a sensor (44R) to the machine element on a second side of the head element wherein the first side and the second side are not the same; and measuring intensity of light

within the machine element from reflected light detected by the sensor. Segerson et al. also disclose (see Figure 3) moving (28) the shaft element; and producing an output signal as the shaft element moves within the machine element. Segerson et al. further disclose (see Figure 4) a seal (55) exterior to the machine element.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. in view of Smietana (U.S. Patent 5,231,959).

Regarding claims 2, 3 and 10, Mori et al. disclose the claimed invention as set forth above. Mori et al. do not specifically disclose a coating on the shaft element, head element or the interior surface. Smietana teaches (see column 3, lines 15-20) a coating on a shaft element, head element and interior wall of a machine element. Smietana further recognizes that such coatings prevent galling or provides for a more resilient surface. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the coatings as claimed in the apparatus of Mori et al. in view of Smietana to prevent galling or to provide elements that are more resilient to wear.

10. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. in view of Lowi, Jr. (U.S. Patent 5,799,629), hereinafter, Lowi.

Regarding claim 4, Mori et al. disclose the claimed invention as set forth above. Mori et al. do not specifically disclose a seal around the shaft. Lowi teaches (see Figure 1) providing a seal (30) at an end wall. Thus, Lowi recognizes that seals help isolate the interior of the machine element from the exterior. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a seal as claimed in the apparatus of Mori et al. in view of Lowi to seal the interior of the machine element from dirt and particles, and thereby improve the operation of the device.

Regarding claim 6, Mori et al. disclose the claimed invention as set forth above. Mori et al. do not specifically disclose a brush. Lowi teaches (see Figure 6) a brush (77) attached to the machine element. Lowi recognizes that brushes help clean the shaft in the machine element. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide brushes in the apparatus of Mori et al. in view of Lowi to clean the shaft element of the machine element and improve the operation of the device.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. in view of Lowi, and further in view of Brunet et al. (U.S. Patent 6,170,573).

Regarding claim 7, Mori et al. in view of Lowi disclose the claimed invention as set forth above. Mori et al. and Lowi do not specifically disclose a wire brush. Brunet et al. teach (see column 10, lines 45-60) a wire brush for cleaning a machine element. Thus, Brunet et al. recognize that wire brushes are cost effective in cleaning machine elements. It would have been obvious to a person of ordinary skill in the art at the time

the invention was made to provide a wire brush in the apparatus of Mori et al. in view of Lowi and Brunet et al. to more effectively clean the device.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al.

Regarding claim 8, Mori et al. disclose the claimed invention as set forth above. Mori et al. do not specifically disclose a second light source. However, it has been held that a mere duplication of parts has no patentable significance. *In re Harza*, 104 USPQ 378. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a second light source attached at the first or second wall of Mori et al. to provide additional illumination and improve detection.

13. Claims 11, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowi.

Regarding claims 11, 12 and 14, Lowi discloses (see Figures 1 and 6) an apparatus for cleaning a machine component, comprising: a machine element (cylinder) having a body (cylinder) defining an interior wherein the body has an interior surface and a length defined between a first end and a second end; a shaft element (piston shaft; 75 of Figure 6) movable within the machine element; and a head element (piston) attached to the shaft element and adjacent to the interior wall of the machine element; and a first brush and second brush (77) positioned in contact with the shaft element. Lowi further discloses (see Figure 1) a seal (30) disposed around the shaft. Lowi does not specifically disclose the position of the brush with respect to the body of the machine element. However, Lowi teaches (see Figure 1) the head element being able to freely move within the body. Thus, it would have been obvious to a person of

Art Unit: 2878

ordinary skill in the art at the time the invention was made to provide the brushes of Lowi at an exterior of the body in order to not interfere with the movement of the head element and maximize the moveable range of the head element.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lowi in view of Smietana.

Regarding claim 13, Lowi discloses the claimed invention as set forth above. Lowi does not specifically disclose a coating on the shaft element. Smietana teaches (see column 3, lines 15-20) a coating on a shaft element and interior wall of a similar device. Smietana further recognizes that such coatings prevent galling. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the coatings as claimed in the apparatus of Lowi in view of Smietana to prevent galling and improve the operation of the device.

15. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowi in view of Mori et al.

Regarding claims 15 and 16, Lowi discloses the claimed invention as set forth above. Lowi does not specifically disclose a light source or a sensor as claimed. Mori et al. teach (see Figures 1 and 2) a light source (44) attached to a machine element or a sensor (45) positioned to receive reflected light within the machine element. Thus, Mori et al. recognize that a light source and sensor allows for position sensing of the piston. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a light source and sensor in the apparatus of Lowi in

view of Mori et al. to monitor the position of the piston and therefore improve the operation of the device.

16. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Segerson et al.

Regarding claim 19, Segerson et al. further disclose (see column 3, lines 5-10) providing a processing unit (control means) that receives the output signal. Segerson et al. do not specifically disclose displaying the output signal. However, displaying detector signals are notoriously well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to display the output signal in the method of Segerson et al. to provide information to operators for ensuring the proper operation of the device.

17. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Segerson et al. in view of Lowi.

Regarding claims 21 and 22, Segerson et al. disclose the claimed invention as set forth above. Segerson et al. do not specifically disclose a first brush or a second brush. Lowi teaches (see Figure 6) a first and second brush (77) attached to the machine element. Lowi recognizes that brushes help clean the shaft in the machine element. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide brushes in the apparatus of Segerson et al. in view of Lowi to clean the shaft element of the machine element and improve the operation of the device.

Response to Arguments

18. Applicant's arguments filed May 7, 2003 have been fully considered but they are not persuasive.

Regarding claims 1-10, Applicant asserts that Mori et al. do not disclose measuring an intensity of light that corresponds to a position of a head element within a machine element at any point between a first and second end. Examiner disagrees. Examiner cites Figures 6 and 7, which shows an intensity of light measurement as the head element travels between a first and second end. Thus, as indicated by the signals, Mori et al. do measure the position of the head element at any point between the first and second end as claimed.

Applicant's arguments with respect to claims 11-22 have been considered but are moot in view of the new ground(s) of rejection.

Thus, as set forth above, this rejection is proper.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 2878


shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
June 13, 2003


Thanh X. Luu
Patent Examiner